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INFORMATION REPORT
CONFIDENTIAL

COUNTRY Austria/Belgium/Czechoslovakia
SUBJECT Monazite Sand and Rare Earth Metals

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Available on loan from the CIA Library is a copy of each of the following documents:

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- (a) Memorandum dealing principally with information regarding monazite sand and the rare earth metals and chemicals derived from it.
- (b) A list of proposed imports for 1949 Spolek, prepared by officials of this Czechoslovakian government chemical organization.

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33

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CONFIDENTIAL

September 13, 1948.

FOREWORD

This memorandum will deal principally with information regarding Monazite Sand and the Rare Earth Metals and Chemicals derived from it.

It will be recalled that Monazite Sand and Thorium Metal and compounds are subject to Public Law 585, - 79TH Congress -- An Act "For the development and control of Atomic Energy".

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I- AUSTRIA.

Treibacher Chemische Werke A/G. (T.C.W.)
Treibach (Kaernten) Austria.

T.C.W. was founded by the late Baron Auer Von Welsbach, the pioneer in the field of Monazite Sand, Rare Earth Chemicals and Metals and Radium. Work also has been done in the past on Uranium. Reference is made to E.I.O.S. Final Report No. 400 "The Cerium Industry in German Territory including reports on Radium and Mesothorium" and to FIAT FINAL REPORT NO. 909, "The Cerium Metal and Lighter Flint Industry in Germany and Austria.

In 1946, a Commission of British Experts flew in from England. Preceded by a detachment of troops, they seized 6500 kilograms of Uranium Compounds (U_3O_8 , $(NH_4)_2U_3O_9$ and $Na_2OU_3O_8$). About 4000 Milligrams of Mesothorium were also taken by the British.

As of July 25, 1948, T.C.W. had no Monazite Sand, Thorium, Radium or radio-active materials.

T.C.W. have been unsuccessful in getting Monazite Sand. Were promised small quantities from Egypt but this did not materialize. Presently producing 4000 Kgs. per month of Cerium Metal (for manufacture of lighter flints and gas lighters) from old residues and from scrap. Expect to receive Cerium bearing ores from the Belgian Congo. T.C.W. does not believe Russia has at present a source of supply of Monazite Sand or Thorium.

II- BELGIUM.

S.A. De Pont - Brule (Entreprises Chimiques Et Electriques)-
Vilvorde

An important company manufacturing large quantities of heavy chemicals. Prior to World War II, imported Monazite Sand and manufactured Rare Earth Chemicals and Metals. Have been unable to obtain Monazite Sand. Had some Thorium residues but found out about a year ago that these residues had been thrown away by accident.

Societe Generale Minerais - Brussels.

Selling Agents for UNION MINERE du HAUT-KATANG^A~~E~~. Latter company have extensive mines in Congo including Uranium, Radium, Cobalt, Copper, Tin, etc.

Have been searching for Monazite Sand, but none found to date. Have found deposits of a Cerium bearing ore "Bastnasit" but which does not contain Thorium.

III- CZECHOSLOVAKIA.

United Chemical & Metallurgical Works Ltd. (called Spolek).

Spolek is the National Chemical and Metallurgical Trust corresponding in size and importance to the former I.G. Farben in Germany. 40,000 workers are said to be employed.

The attached list of materials, EXHIBIT A, which Spolek intends to import in 1949 will give an idea as to their size.

Monazite Sand.

Spolek has tried desperately to obtain Monazite Sand and Thorium Compounds. The Monazite is wanted to make rare earth compounds and metals for flints, and the Thorium for gas mantles. It was stated that the Czech Ambassador had appealed to the United States Government for Monazite Sand but had been refused. Spolek offered to permit inspection of its factories and to guaranty that the Thorium would be used only for gas mantle manufacture.

Prior to the war, Spolek used Norwegian "Allanite ($\text{SiO}_2\text{Ce O}_2$) for making rare earth compounds. This is no longer available to them.

In General.

Conversations were held with a number of Czech people - business people and their families. Every one complained bitterly of what was happening in their Country. They were worried and terrified and thought only of escape. They felt only a new war would save them from becoming Russian Slaves. They are being asked to join the Communist Party under threat of losing their positions and homes, if they refuse. It was repeatedly stated only one in ten are Communists but this one ruled and threatened the other nine.

Example after example could be seen of the same tactics which were used by the Nazis in Germany from 1933 on.

Several references were made to reports that the Russians were working the Czech Uranium Ore Deposits - 24 hours per day with slave labor.

IV - ENGLAND.

Thorium Limited. - London.

Thorium Ltd. is affiliated with I.C.I. and these are the only concerns treating Monazite Sand and Thorium Compounds.

The Travencore Government (India), still refused to ship them Monazite Sand and the negotiations have almost broken down. An important I.C.I. and government official is said to be on his way to India.

The impression was obtained that England has a stockpile of sand which will last, at the present rate, from one to two years. However, the present rate is far below the demand.

Although nothing was said, one wonders if the Russians are involved

in the refusal of the Travencore Government to ship Monazite Sand.

Rare Earth Metals.

England has made phenomenal progress with the use of the Rare Earth Metals for alloys in two fields, viz.,

- 1- Gray cast irons, see attached booklet, EXHIBIT B, "Nodular Graphite Structures Produced in Gray Cast Irons". It was stated in a visit to the British Cast Iron Research Association that many of the leading foundries are testing this process on a large scale for important uses.
- 2- Magnesium - Cerium - Zirconium Alloys. See attached booklet, EXHIBIT C,

Alloys, containing rare earth metals, developed by the Magnesium Elektron Ltd., London, are being used extensively in new jet planes under design, and in service, including the famous De Havilland "ghost" and Rolls Royce "Vampires". Also the "Mamba" jet gas turbines.

V - FRANCE.

Societe des Produits Chimiques des Terres Rares Str. - Paris.

S.T.R. is the most important company in Rare Earth field. Have been appointed by French Government to handle Atomic Energy Projects. S.T.R. has three plants.

- 1- "Fabriques de Produits Chimiques" at Thann. The director of this factory is Prof. Leon Demugle, who recently resigned as Secretary of the Atomic Energy Commission. Here they have an installation to treat about 600 tons of Monazite Sand annually. Also manufacture large quantities of heavy chemicals including acids, Caustic Potash, Chlorine, Titanium Dioxide, Zirconium Compounds, etc.
- 2- La Rochelle. This is a new factory which will be used for work on Atomic Energy.
- 3- Serquiney (Normandy). This factory was destroyed by American planes, but has been rebuilt. Monazite Sand was originally treated here and residues from these operations are now being treated. It is estimated that by December 31, 1948, about 70 tons of Thorium Compounds will have been recovered and shipped to the factory at La Rochelle.

A new plastic industry has been founded here using Castor Oil as a base.

Monazite Sand.

The factory at Thann is presently working with Monazite Sand received about two years ago from Travencore/ India. At

that time a shipment of about 200 tons was received in France.

S.T.R. has made great efforts to locate Monazite Sand during the past two years. Experts (Mr. Raoul DeVitry and Mr. DeRohden) have been sent to the Colonies, including Madagascar, Africa, Indo-China and also to Brazil. Exploration of the Colonies were unsuccessful.

It was stated that arrangements have been made in Brazil to treat Monazite Sand there and ship the chemicals (other than Thorium) to France.

The Brazilian company is the firm of "ORQUIMA". Orquima have a successful chemical factory in Brazil where they make Caffein, Menthol and other chemicals. S.T.R. is supplying the "know how" and ORQUIMA will operate the plant. Orquima chemists have been in France studying the process and S.T.R. chemists have been in Brazil. The head of Orquima is Mr. Kent Weil, who was in Paris in July, 1948.

VI - GERMANY.

Deutsche Gold u Silberscheideanstalt (Degussa).
Frankfurt A/M.

Degussa is attempting to enter the rare earth chemical and metal field and to continue the work of its former subsidiary in this field "Auergessellschaft".

The main Auergessellschaft Plant was in Bitterfeld in the Russian Zone. (See FIAT final report 909).

Degussa has tried to get Monazite Sand through "JEIA" but has been unsuccessful.

Degussa had a rare earth chemical plant at Rheinfelden (French Zone), but this has been seized by the French and turned over to a French Company ETS. Kuhlmann (Canello) Paris. It is said there were considerable quantities of rare earth compounds at Rheinfelden.

Th. Goldschmidt A/G - Essen.

This company also intends to enter the rare earth metal field starting with the manufacture of Ferro-Cerium lighter flints. They wish to import the metal through JEIA and later manufacture the metals from the chemicals.

TH. GOLDSCHMIDT A.G. was one of the outstanding independent chemical and metal companies in Germany. They were particularly well known for their detinning processes; thermit and welding processes, and development of plywood adhesives. The attached pamphlet, EXHIBIT D, lists their factories and products. The Chemische Fabrik Buckau, Ammendorf, is in the Russian Zone. It was stated that the equipment for manufacturing Tego Gluefilm has been dismantled from the factory and moved to Russia. Tego Gluefilm, which is also manufactured in the United States and England under license, was used in huge quantities for making waterproof plywood for aircraft and ships during the war.

Dr. Theo. Goldschmidt, President of the company, expects to come

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to the United States for a visit in October. He is also President of the Chamber of Commerce for Essen and the Ruhr District.

In General.

The impression was obtained that the Russians do not have access to Monazite Sand.

EXHIBIT "A"LIST OF PROPOSED IMPORTS FOR 1949
SPOLEK

Tin Oxide	15	Tons	Boric Acid	55	Tons
Saltpeter	300	"	Kali Salts	6000	"
Raw Borax	1500	"	Citric Acid	750	"
NA SO ₄ (Calcined)	180	"	Strontium Carbonate	1	"
Barium Sulphite	79	"	Magnesium Sulphate	2116	"
Barium Carbonate	30	"	Sulphur	7318	"
Selenium Metal	2.1	"	Sodium Metal	12	"
Monazite Sand	1000	"	Nickel Sulphate	15	"
Glycerin	180	"	Carbon Black	50	"
Photo Gelatin	24	"	Casein	40	"
Acetic Acid	70	"	Acetone	20	"
Fatty Acid Alcohols	28	"	Tannic Acid	9	"
Naften	20	"	Zircon Oxide	3	"
Manganese Acid	700	"	Urea	2	"
Synthetic Resins	20	"	Aniline Colors	60	"
Organic Semi Products			Stearic Acid	1	"
for Colors	345	"	DDT	175	"
Paraffin	30	"	Fats, Oils for Pharm.	600	"
Organic Oils	436	"	Pyrites	71,000	"
Manganese Ores	2460	"	Chrome Ore	2400	"
Illemit	3500	"	Plastics	535	"
Asbestos Filters	6.2	"	Asphalt	640	"
White Mineral Oil	100	"	Cellulose, Viscose	2500	"
Natural Rubber	20	"	Chlorinated Rubber	4.5	"
Ferro-Manganese	5	"	Lead	2310	"
" Chrome	220	"	Tin	254	"
Zinc	6140	"	Copper, elec.	100	"
Nickel	11	"	Aluminum	190	"
Bismuth Ore	70	"	Cadmium	207	"
" Salts	20	"	Aluminum Foil	45	"
Electrodes	2100	"	Iodine	10	"
Magnesium Oxide	17	"			

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Next 2 Page(s) In Document Exempt

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